

Male-specific DNA test yields clues in criminal cases

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LOOKING FOR THE Y CHROMOSOME IN DNA

Among the 20 local sexual assaults solved by the Harris County Medical Examiner's Office thanks to male-specific DNA tests since June:

- **65 percent:** Involved victims under 18 years old
- **38 percent:** Involved children under 10 years old
- **60 percent:** Involved DNA originating from oral contact or dry skin cells
- **65 percent** of the cases relied on testing vaginal swab samples
- **20 percent** of the cases relied on testing swabs taken from other parts of the victim's body
- **15 percent** of the cases relied on testing of clothing items

Source: Harris County Medical Examiner's Office

A progressive type of testing that separates male DNA profiles from those of females is helping the Harris County Medical Examiner's Office start solving sexual assaults and other crimes that previously yielded inconclusive results.

The new male-specific DNA test zeroes in on minute amounts of biological evidence, such as saliva, skin cells or a trace of semen.

The technology, which the office began using in June, has already yielded positive results in 20 sexual assault cases reviewed by the institution's forensic biology laboratory. Harris County Chief Medical Examiner Luis Sanchez calls the new test a “byproduct of cutting-edge science.”

Known as Y-chromosome detection analysis, the test has other benefits as well. It extends the time that evidence may be collected after a sexual assault from the typical 48 hours all the way up to 96 hours — or some experts say, a maximum of 120 hours.

In a rape case with multiple perpetrators, the male-specific test also will determine the number of men who participated in the attack.

There are some limitations, though. The technique is not useful in assaults involving people of the same gender. It also cannot discriminate between male siblings.

“Everyone recognizes (this) testing will work when traditional testing doesn't,” said Dr. Roger Kahn, the Harris County medical examiner's forensic biology director. “The number of successes is up. Even we're surprised at some of these.”

New technology

Among the cases that have yielded results is that of a 9-year-old girl who reported a male relative molested her while she slept. No one else witnessed the crime, and no semen was recovered. Traditional DNA tests yielded inconclusive results.

But the new technology later turned up a partial DNA profile on swabs and portions of the girl's clothing that matched the suspect's, said supervisory forensic investigator Dan Morgan.

In another case, a woman noticed bruises on her 9-year-old daughter's neck that appeared to be caused by heavy and forceful kissing.

The girl reported a family member caused the bruises. Those bruised areas were swabbed for possible saliva, and the male-specific DNA test results substantiated the child's allegation, Morgan said.

The technology essentially renders the female DNA profile invisible and turns up any male DNA, no matter how minute, that may have been previously unseen.

“There's no way you can tell by looking at the victim whether there's going to be a small amount there — there may be no trace of a stain or any sort of discoloration on the victim at all,” Kahn said. “This is something where the victim tells the nurse that, ‘He licked me here,’ or ‘He bit me here,’ or ‘He put his mouth here’ and they simply collect the sample and we see what we get.

“I think it encourages the (nurses) to know that we have testing that will actually make these collections worthwhile, that they will actually get results.”

Other kinds of cases

The male-specific DNA tests are not just useful in sexual assaults. The advanced testing can be used to test a mixture of blood from a man and a woman.

It can be used to solve different types of crimes involving people of the opposite sex, such as burglaries or homicides not involving sexual assault.

“For example, the female is stabbed — most of the blood that you recover on a knife, say, is her blood, but possibly the perpetrator cut himself and just a little bit of the blood is his,” Kahn said. “Or just his skin cells — in a situation like that, where you got a knife recovered, you might swab the handle of the knife, and sometimes you'll see a pure sample, even in traditional tests, of the male perpetrator. But sometimes you don't.”

Limitations

The technology works only in cases where a suspect has given a DNA sample to investigators looking at a specific crime, Kahn said. It is not capable of identifying an unknown attacker by matching a collected DNA sample to those among the 7 million people in the nationwide Combined DNA Index System containing profiles of convicted offenders.

Of the 20 Harris County sexual assaults that been solved through this type of testing, 65 percent of the cases involved victims under 18 years old and 38 percent involved children under 10 years old, Morgan said.

The majority of the cases — 60 percent — involved DNA that came from oral contact on a dry skin surface, the medical examiner's office reported.

None of the cases that yielded positive results have gone to trial yet, medical examiner's officials said.

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